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INTERRELATIONSHIP BETWEEN INVESTMENT AND TECHNOLOGY TRANSFER

Laws and regulations dealing with transfer and development of technology: an overview

Report by the UNCTAD secretariat

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Preface

1. Pursuant to the work programme of the Ad Hoc Working Group on the Interrelationship between Investment and Technology Transfer, adopted at the Group's first session (25 - 29 January 1993),[1/] the UNCTAD secretariat has undertaken a review of existing national policies, laws and regulations, as well as bilateral, regional and multilateral agreements relevant to technology transfer and development. The review is aimed at updating and expanding a compilation of legal materials prepared in 1982.[2/] In this respect, the secretariat plans to establish, in the future, a data-base on legal material concerned with the setting up of service-oriented activities that could be used by Governments, as well as the business community and research institutions.[3/]

2. The present overview focuses on changes in policies and legislation, in particular recent developments regarding investment promotion and transfer of technology, including technological innovation and the protection of intellectual property. The document draws on earlier work of the secretariat in related areas of foreign direct investment, technology and competition.[4/] The instruments reviewed in this report are mostly those of countries that responded to a note of 19 May 1993 sent by the Secretary-General of UNCTAD to Governments of States members of UNCTAD requesting relevant information. The UNCTAD secretariat wishes to take this opportunity to express its appreciation to the Governments that responded to the said request. [5/]

3. Chapter I of this report provides an overview of the rapidly changing patterns of trade, production and innovation in the area of technology and the general trends in policy and legislation adopted by Governments in the light of these changes. Chapter II provides a summary of selected recent policies and legislative developments. Chapter III deals with developments at the bilateral and multilateral levels relevant to transfer and development of technology.

Chapter I

INTRODUCTION

4. Technological advances and their rapid diffusion, especially in the area of information, have contributed to the creation of new markets and the transformation of innovation and production processes. These changes and the attendant shift towards global competition necessitate a continual search for alternative strategies by enterprises and for improved policy instruments by Governments that will enable them to respond more effectively to the new world economic environment.

A. Changes in patterns of production and innovation in the area of technology and their impact on government policies

5. Over the last two decades, the strategies and practices of many enterprises have significantly affected the transfer, development and diffusion of technology. R and D, production, marketing and enterprise organization have all been strongly influenced by technological and commercial trends. Particularly in the chemical, computer and telecommunications sectors, R and D expenditures have greatly increased due to the growing realization of the importance of innovation for competitiveness.[6/] This has affected firm strategies relating to intellectual property protection and international transfer of technology. Moreover, although enterprises are undertaking more "in-house" R and D, much is also being done through collaborative links with other enterprises and universities (the latter because of the degree to which new technologies have become dependent on basic research and on extensive cross-fertilization of scientific disciplines).

6. The increased cost of R and D and the changes in production and marketing were important factors behind the wave of mergers, acquisitions and collaboration arrangements that occurred in the developed countries in the 1980s. Mergers and acquisitions are seen as a means of gaining access to the technology of the firm acquired, of realizing economies of scale and scope, of creating the necessary revenue base for R and D activity, and of speedily penetrating world markets (improving both market access and distribution). Such advantages have also led to the massive growth in developed countries of joint ventures and technological collaboration arrangements or strategic alliances.[7/] This trend has flourished in recent years because of the acceleration of technological innovation and the shortening of product lead-times and life cycles, which have made time a critical factor to be considered. Strategic alliances between enterprises, with or without support from Governments, can provide

shortcuts for private companies racing to improve their production efficiency, quality and performance. In addition, the convergence of technologies used in different sectors in formerly separate markets has made collaboration ventures even more attractive. All these converging factors have led companies to believe that the sharing of risks and resources is an increasingly desirable strategy.

7. The new forms of collaboration agreements differ from the earlier generation of "traditional joint ventures" among firms in developed countries and from the "new forms of foreign investment" which took place in developing countries during the 1960s and 1970s (e.g. licensing and know-how agreements, turnkey contracts, joint ventures). In a North-South context, cooperation between supplier and acquirer is usually concerned with aspects related to the proper implementation and absorption of the technologies, but does not embrace the creation of a new product or process. What distinguishes collaboration agreements from the above-mentioned more traditional forms of transfer of technology is the fact that the cooperation partners are both acquirers and suppliers of technology. The barter of technological information and knowledge based on reciprocity is therefore institutionalized by means of a contract. Technological cooperation is principally taking place among enterprises in developed countries, and particularly in high-technology sectors. The wave of strategic alliances comprising R and D cooperation does not so far extend to any significant extent to developing country enterprises.[8] Although it is more common for the latter to be involved in joint ventures or technological collaboration (such as subcontracting arrangements), the number and scope of such arrangements is still relatively limited in comparison with those of developed countries. There are, however, exceptions to this - electronic firms from the Republic of Korea are involved in a network of joint ventures and technological collaboration arrangements with American and Japanese enterprises. There are also some cases of mergers and cooperation alliances between firms from Taiwan, Province of China, and the United States (in particular in the area of manufacturing of computers).[9]

8. Increased technology-based global competition and mounting R and D costs have led enterprises in developed market-economy countries in a wide range of industries to regard the protection of their technological assets as crucial. Another relevant factor has been the ease with which some new technologies and products resulting therefrom can be copied. Indeed, technological developments may themselves facilitate such copying. Patents and other methods of intellectual property protection have thus become important strategic and marketing assets (including in the context of cross-licences); this is the case particularly in the computer, semi-conductor, pharmaceutical, chemical and (to a lesser extent) petroleum, machinery and fabricated metal products industries. Even in these industries, however, and certainly in other industries where patents are less important, companies also rely for their competitive advantages on secrecy, know-how or know-why advantages (which are sometimes also trade secrets) and brand-name recognition. Thus, what seems to be important for firms is not intellectual property rights in isolation but the whole "package" of technological assets. Technology suppliers' concerns about keeping control of their technology have also had a marked impact on their transfer strategies, which have become more selective and cautious.

9. In a number of developing countries, a significant learning process has taken place. Many enterprises have acquired a capacity to negotiate the terms and conditions of technology transfer contracts better, partly because of improved cooperation with the competent governmental authorities. In some Asian countries, large enterprises (including public enterprises) which have been buyers in the technology market for a long time have also learned to search for alternative sources of technology and to participate in joint ventures.[10/] Meanwhile, in most of these countries, there is also a much larger number of small and medium-sized enterprises (SMEs) which have become buyers on the international technology market and which are capable of using the technology thus acquired. Recipient enterprises have also become more sensitive to the importance of personnel training, including training overseas, and have often found suppliers to be cooperative in this respect. In general, enterprises in some developing countries appear to be shifting their objective in technology transfer transactions from the mere acquisition of technical knowledge to the acquisition of the capability to master a technology. Given this more ambitious objective, and given the increasing complexity of technology being transferred, these enterprises have become more interested in closer cooperation and long-term relationships with technology suppliers. Thus, there seems to be developing, in many cases, a greater understanding between suppliers and acquirers of each other's point of view. However, it is difficult to say whether these trends are prevalent in all developing countries, particularly least developed countries.

B. General trends in policies and legislation

10. In the context of firm practices and strategies, as outlined above, major technological advances have occurred over the last two decades. In view of these advances and their effects on trade and production, considerable attention has been given in recent years, both at the national and the international levels, to the creation of an environment conducive to technology transfer and development. This has led a number of Governments to formulate policies, laws and regulations relating to the transfer, development, adaptation and diffusion of technology. Most Governments in the industrialized world have had technology policies for a number of decades because of the pioneering role of their enterprises in the creation, development and innovation of science-based technologies. Some of them, in efforts to boost further the technological capacity of their enterprises, have taken steps to formulate new policies and legislation for promoting and encouraging technology transfer. Some have adopted incentive schemes for transfer and dissemination of technologies from public-sector laboratories and research and development centres to the private sector for utilization and commercialization. Others have introduced policies and measures for the regulation of unfair trade practices in international technology licensing agreements with the objective of safeguarding fair competition among firms.

11. The increasingly decisive importance of technology to competitiveness [11/] and the fast pace of technological development, particularly in areas such as informatics, telecommunications, biotechnology and new materials, have not only had an effect on

increased productivity and improvement of services but also raised concerns about adequate protection for such technologies. Most developed countries have taken steps at the national level, as well as at the regional and international level, to formulate and implement policies and legislation for the protection of intangible technological assets. Traditionally, protection was afforded through patents, trademarks and copyright. However, with the development of new technologies, other methods of protection have had to be devised. For example, some countries have passed legislation in recent years for protection of layout design of semiconductor integrated circuits. These developments have also led Governments to seek international protection in respect of trade secrets, compilation of data, etc.

12. Given the resource constraints in developing countries, technology acquisition at reasonable costs and on equitable terms and conditions still rates high on the list of legislative and policy priorities of these countries. Thus, the main focus in the developing countries has been on the formulation of policies and legislative instruments for the promotion and encouragement of foreign investment and related technology transfer. This process has been accompanied by intense activity at the bilateral, regional and international level to achieve similar results. Most countries have liberalized their investment legislation in order to attract more investment, while at the same time incorporating clauses which would encourage maximum utilization and better absorption of the imported technology. Human resource development at the managerial and technical levels has become an important objective of policy-making in this area. Although direct foreign investment still plays a major role, the use of other forms of technology transfer such as licensing and joint ventures has increased in some of the developing countries. Another major topic of legislative activity has been the reform of intellectual property régimes in response to the trends outlined above.

13. International arbitration with respect to international contracts, and particularly as far as investment disputes are concerned, has now become more or less standardized and universally acceptable. Despite nuances in various national legal norms and practices, the majority of countries accept binding international arbitration and mediation in the event of disputes. The main mechanism is the International Center for the Settlement of Investment Disputes.

Chapter II

SUMMARY OF SELECTED RECENT POLICIES AND LEGISLATIVE DEVELOPMENTS

A. Developed countries

14. The strengthening of international competitiveness in respect of products and services has led Governments of market-economy countries to increase innovation and R and D promotion markedly in recent years. In addition to increased R and D spending, a wide array of instruments have also been used for this purpose. Collaboration between Governments and enterprises to stimulate R and D has been intensified through government financial support for R and D activities by universities - and other research institutions - and through government-industry cooperative national or international research projects. Competition-law controls on R and D joint ventures, including exploitation of results, have been liberalized in both the United States and the European Union, while Japan has introduced new guidelines which tend to liberalize competition control on joint R and D ventures.[12] Protection of intellectual property and remedies against infringement have been strengthened, both at the domestic and the border levels. In the United States, for example, the Federal Court for Patent Appeals has been created; the rights of patent-holders are now upheld in court judgements twice as often as in the 1970s; and higher damages are being granted, as well as injunctions. The Omnibus Trade and Competitiveness Act of 1988 grants much stronger rights and remedies to petitioners seeking to bar imports of alleged infringing foreign goods. The scope of protection of certain intellectual property rights has also been broadened. Full patentability for both pharmaceutical products and processes has been recognized, and most countries have also strengthened protection for biotechnological innovations and have lengthened patent duration for all inventions (sometimes for chemical/pharmaceutical inventions in particular).

Collaboration arrangements and competition laws

15. In order, inter alia, to stimulate R and D, technology importation and the competitiveness of their enterprises, Governments in developed market-economy countries, particularly the most advanced amongst them, have also liberalized authorization requirements for inwards foreign direct investment, as well as competition law controls on mergers, acquisitions, joint ventures and cooperation arrangements. Salient features include: (a) a more liberal approach to vertical or conglomerate mergers in some countries, on the grounds that

these will not increase market share; (b) a readiness to look not just at the degree of market power attained, but also at the "pro-competitive efficiencies" that may follow from the merger; (c) a tendency, in evaluating the effects upon competition, to consider the relevant geographical market to be the world market, to widen the relevant product or technology market, and to consider potential as well as actual competitors; and (d) the favourable treatment of R and D joint ventures, already mentioned. In the United States, since 1993, favourable treatment is also provided to production joint ventures. [13] The changes in competition laws and enforcement policies on restrictive practices, as well as the strengthening of legal protection for technology, have also been introduced partly in order to stimulate technology importation. Other measures adopted for the same purposes include lower tariffs for selected high-technology products and the tightening of legislation and measures relating to rules of origin, anti-dumping and local content.

Technology exports

16. The strategies of industrialized countries relating to technology exports have also evolved in recent years. There has been a liberalization of controls relating to outward investment and foreign exchange. However, some restrictions on technology generated from government-funded R and D still exist, and they may have the effect of preventing international transfer of technologies. Examples of such restrictions are those which provide for sole or majority participation of domestic enterprises and institutions in R and D programmes, for licensing of R and D results only to domestic enterprises, or for exclusion of foreign enterprises unless they exploit the technology locally or otherwise contribute to the enhancement of the interests of the Government or of domestic enterprises. This principle, which is reflected in the Omnibus Trade and Competitiveness Act of 1988 of the United States (the so-called Symmetrical Access Clause), is perceived by policy-makers as entirely appropriate in the light of today's environment of intense global economic competition. The joint R and D programmes (e.g. ESPRIT) currently under way in Europe remain, in principle, restricted to outsiders. Other research consortia in Japan and the United States also have similar de facto rules of exclusion.

Treatment of restrictive practices

17. The liberalization of competition laws and policy in most developed countries has significantly affected the treatment of restrictive practices. Over the last two decades, one main trend that can be discerned is the greater weighting provided to doctrines which tend to exempt restrictive practices from the application of competition controls. This includes the doctrines of the per se legality of practices based upon the rights granted by intellectual property titles, and the rule of reason or legitimate interest, in contrast to the doctrines of per

per se prohibitions, abuse control of market-dominating positions, and the market power conferred by intellectual property rights. Favourable treatment is particularly being provided to restrictions imposed in the context of "vertical" relationships, although the distinction between "vertical" and "horizontal" transactions is not without its difficulties. The application of competition law to parent-subsidiary relationships continues to be generally excluded, although, in the European Union the theory of the economic unit is not necessarily accepted automatically, and the relationship of interdependence between parents and subsidiaries may have to be proven in individual cases.

18. Thus, according to the doctrine of per se legality now applied in some countries, the grant of an intellectual property right implies the right to impose restrictions upon licensees which are within the scope of the protected rights. [14] Some laws extend this doctrine to other practices which are not a direct outflow of intellectual property rights but are closely related to them. [15] In some countries, "white lists" containing practices which will not be challenged under competition law have been established through legislation or by enforcement authorities. Among the practices considered to fall within the ambit of such "white lists" are the following: refusal to grant licences; prohibition of sub-licensing; field-of-use restrictions pertaining to type (i.e. only manufacturing or distribution), technical field, or product markets; restrictions relating to volume, territories, or possible customers; time restrictions (within the life-time of the protected right); restrictions on the use of still valid intellectual property rights after termination of the agreement; and non-disclosure obligations (in the case of know-how).[16] However, while most countries have tended to broaden the scope of permissible practices in the context of intellectual property rights, the exercise of such rights is never entirely out of the reach of competition law. [17]

19. On the other hand, the doctrine of per se prohibitions is still applied in many countries to: (a) practices which are not covered by the rights conferred by intellectual property legislation at all, such as the transfer of a minor or even entirely worthless intellectual property right only as a pretext for introducing restrictive clauses or clauses which extend restrictive practices allowed in the case of intellectual property rights to products, services or markets not covered by the intellectual property rights involved (such as price fixing, market sharing and similar practices for unprotected products);[18] (b) agreements between competitors or potential competitors such as cross-licensing or patent pooling (although the application of competition law in some countries would depend upon whether the agreement restrains competition between the parties or hinders possible competition from third parties); and (c) in a few countries, some vertical restrictions such as vertical price fixing. Thus, corresponding to the "white lists" mentioned above, there are also "black lists" containing practices which are prohibited per se. Practices which so far have been considered as per se violations of competition law and to which more lenient approaches are now being advocated include tie-ins, exclusive dealing (tie-outs), and price-fixing.

20. The shift away from per se condemnation of restrictive practices has also led to a greater reliance on the doctrine of the rule of reason or legitimate interest and the evaluation of practices in a more flexible manner on a case-by-case basis.[19] Public interest and technological competitiveness considerations have also played an increasingly influential role

in recent years in the application of competition law. Some laws consider the promotion of international competitiveness as a pro-competitive element per se. After the success of 1984 legislation on cooperation arrangements in the United States, attention was given to encouraging manufacturing or production joint ventures leading to technological innovations and their profitable commercialization critical to the ability of American industry to compete in the international market place. It is considered that cooperative arrangements among firms are essential to convert research and development advances into commercial production. Accordingly, an amendment has been introduced to the legislation which deals with this area. The Amendment Act of 1993 reflects the extension of the National Cooperative Research Act to production joint ventures.

B. Overall changes in developing countries

Transfer of technology regulations

21. The strategies of the Governments of developing countries relating to the acquisition of technology have undergone many changes. In the late 1960s and 1970s, a number of Governments enacted laws and regulations on transfer of technology or incorporated technology import guidelines into their foreign investment policies. Government agencies were also established to screen technology transfer transactions and to assist local enterprises in the negotiation of contracts. The pioneering countries in this respect included the member States of the Cartagena Agreement (Andean Group), Argentina, Brazil, India, Mexico and the Philippines. These initiatives influenced the interest of some countries in adopting an international code of conduct on the transfer of technology.

22. The objectives sought through these technology transfer régimes included: (a) the improvement of the commercial conditions of agreements, particularly the prices charged (taking into account foreign exchange and tax avoidance problems); (b) the elimination or reduction of restrictive practices; and (c) the unpackaging of the different components transferred. Other objectives included the avoidance of the importation of technology which was already locally available, the improvement of conditions for the assimilation and adaptation of the transferred technology, the control of the intra-firm operations of TNCs, and the reduction of the duration of contracts. While the screening process and the control of contractual mechanisms have had a definite impact on licensing agreements, especially with regard to royalty payments, restrictive practices and duration of contracts,[20] it is not clear to what extent other objectives may have been attained, especially in view of the fact that transactions, such as contracts for the acquisition and/or installation of machinery and equipment, or public procurement, are usually outside the competence of technology transfer agencies. Moreover, the focus on "control" might sometimes have led to less attention being given to other crucial aspects such as the process of technology assimilation by local firms, the upgrading of technological capabilities in the country and the monitoring of the implementation of contracts.

23. Steps have been taken in most developing countries with technology transfer régimes to address some of the above-mentioned deficiencies. Special technology transfer régimes have been streamlined to reflect development priorities with respect to specific industrial sectors or technologies. Special programmes with respect to new technologies have also been adopted in some countries. Technology-importing firms in some countries are given advice on training and R and D programmes, while suppliers are invited to contribute to R and D either in the recipient enterprise or in the country generally. [21/] Better data and advisory services are also being provided to local enterprises in respect of selection of technologies and foreign suppliers and negotiation of contracts.[22/] These requirements have brought about a new approach, which focuses more on effective collaboration between partners to attain real technology transfer rather than on the mere control of contractual aspects of transactions.

24. A number of countries have more recently further liberalized, in varying degrees, the provisions of their technology transfer legislation or have relaxed their implementation. This has been because of: (i) concerns (heightened by the increased need for foreign capital) about the possibility of "disincentive" effects on foreign investment and on technology transfer and absorption, particularly of new technology; (ii) the belief in some countries that the increased negotiating capabilities of national enterprises may have lessened the need for government intervention; (iii) the accumulation of more experience by the competent authorities, leading to greater selectivity and flexibility in the application of controls; and (iv) foreign firms' concerns on the restrictive nature of the legislation. Liberalization has taken place on such questions as the need for authorization of some contracts, the limits on the confidentiality of technology, the acceptability of royalty payments between parents and subsidiaries, longer duration of contracts, restrictive practices, and international arbitration. Flexibility is being shown, in particular, where the technology being transferred is advanced, export-promoting or import-substituting, labour-intensive, or is to be applied in industries considered of great economic importance. In some countries, liberalization has been quite marked, sometimes resulting in the abolition of a registration system or in a change from registration subject to approval to automatic registration for recording purposes only.[23/]

25. However, in such cases, the competent authorities do tend to retain influence, particularly in relation to payments and control of some restrictive practices, although intervention is applied with much greater flexibility and discretion. For example, in the Philippines, in assessing the reasonableness of the payment in relation to the value of the technology, the following criteria are taken into account, inter alia: (i) scope, complexity and pioneering nature of the technology; (ii) importance of the technology in relation to the technology recipient's overall activity; (iii) degree of mastery of the technology by the technology suppliers; (iv) stage of the licensed product in the product life cycle; (v) use of indigenous raw materials and services, energy savings, and level of priority of the licensed activity; (vi) employment generation; and (vii) export earnings and their effect on the balance of payments.

Intellectual property rights

26. In the late 1960s and early 1970s, a number of countries in Asia and Latin America revised their industrial property systems in order, inter alia, to encourage the local working of inventions and the use of intellectual property rights (IPRs) in such a way so as to avoid anti-competitive practices. However, the application of those régimes was sometimes difficult, because they were perceived as being restrictive by trading partners and foreign corporations. While some countries were making such changes, other developing countries, mainly those with a weaker technological base, continued to maintain their traditional intellectual property régimes or to adopt intellectual property legislation where they did not already have it.

27. More recently, as a result of increased criticism by foreign firms and mounting pressures from trading partners, a number of developing countries have modified their intellectual property legislation to strengthen protection or introduce new enforcement measures. Mexico's new legislation on intellectual property that came into effect in June 1991 is a good illustration of the extent of the changes that have taken place in this domain. The main purpose of the legislation was to provide more legal certainty and security for investment in Mexico with a view to facilitating transfer of technology and stimulating R and D activities, thus improving productivity and quality in industries. The new legislation contains numerous elements which, following the mainstream of trends in intellectual property protection, substantially changed the previous legislation on the subject. The scope of patentability includes all processes and products, including chemicals, alloys, pharmaceuticals, biotechnology and plant varieties, while the term of protection has been extended to 20 years. Importation of a patented product obtained from a patented process is considered working of the patented invention and, therefore, compulsory licences are restricted to exceptional circumstances. Another feature of the legislation is the distinction made between micro-organisms, plant varieties and biotechnological processes, which are patentable, and essentially biological processes, plant and animal species, biological materials, genetic material and inventions relating to the living matter that compose the human body, which are not patentable.

28. A similar tendency to widen the scope of intellectual property protection has been seen in a number of other developing countries, including Chile, which adopted a new law on industrial property in 1992 that extended protection to pharmaceutical products. Similar changes have been adopted by the Republic of Korea, Indonesia, Singapore and Thailand, all aimed at extending the scope of protection of IPRs.[24]

Treatment of restrictive practices

29. As indicated above, in developing countries with technology transfer régimes, the treatment of restrictive practices has also been liberalized, to varying degrees. However, this liberalization has not been a result of a change in legal doctrines, as in developed countries. The treatment of restrictive practices in developing countries was, and continues to be in a number of cases, based upon broad concerns relating to potential adverse effects upon the economy or development (including technological development) of the acquiring country, although such concerns might also include the possible anti-competitive effects of restrictive practices. In line with this approach, the existence of parent-subsidiary relations between suppliers and acquirers did not usually exempt them from the application of technology legislation; indeed, stricter rules have sometimes been established for such transactions. Recently, however, there has been extensive liberalization on this practice.

30. On the whole, the technology transfer régimes of developing countries have tended to avoid use of the rule of reason, at least as an explicit legal concept. They have usually preferred outright prohibitions of specified practices (although the list of practices was often illustrative), which were often combined with special exceptions under which such practices might be acceptable and a general exception provision allowing the authorities to accept practices when it was in the national interest, or when benefits would accrue to the national economy. Such possible benefits may be specified in general exception clauses. For example, in the Philippines, with regard to restrictive business practices, an exemption is provided in cases where substantial benefits will accrue to the economy as a result of such factors as high technology content, increase in foreign exchange earnings, employment generation, regional dispersal of industries and/or import substitution or the use of local raw materials, or in the case of companies with pioneer status.[25] Liberalization is gradually taking place in the regulation of restrictive business practices. While the previous Technology Transfer Board rules did not allow export restrictions in any form, the new Technology Transfer Registry rules allow a restriction if justified for the protection of the legitimate interests of the technology supplier and the technology recipient, for example in the case of exports to countries where any of the party's industrial property rights will be infringed or where exclusive licences to use the technology have already been granted. Likewise, for post-expiry restrictions on the use of technology, the Registry now practices flexibility in the implementation thereof, taking into account the interests of both parties. In general, future trends in this area will have to reflect the evolution of legal changes, as reflected today in the recently agreed TRIPs agreement (see para. 45 below).

Foreign investment regimes

31. The liberalization of technology transfer régimes has been paralleled by liberalization in foreign investment régimes, especially in such areas as the reservation of certain fields or sectors of economic activity to the State or to national enterprises; limitations on the acquisition, or requirements for reductions in share ownership, of domestic enterprises; and controls on remittances of profits and capital. Governments are also now actively prospecting for potential foreign investors and technology suppliers, including SMEs, and helping them to find local partners.

32. This process of liberalization that started in the 1980s has by now marked most countries in Asia, Africa and Latin America. Some countries such as China, India, the Republic of Korea, the Philippines and Mexico, previously known for their cautious attitude towards foreign investment, have changed their policies. An important change has occurred in the areas defined for foreign investment. There is a shift from "positive lists", which allowed entry of foreign investment into defined areas, to "negative lists" which prohibit entry to only a few areas. For example, in 1984, the Republic of Korea adopted a negative list, and an automatic approval system was introduced. The automatic approval system was replaced in 1991 by a prior notification system. In 1992, joint venture and export requirements were abolished in many areas. The service sector remains more restricted to foreign investment than the manufacturing sector. In the Philippines, the Foreign Investment Act 1991 removed all restrictions on the extent of foreign ownership of firms that export at least 60 per cent of their production, even when such firms are placed on the "negative list". In India, as a result of recent developments, foreign equity is allowed in a number of high-priority areas, including engineering, electronic software, chemicals, food processing and tourism. Recent enactments have also reversed earlier limitations on the use of foreign brand names for domestic sales and for export.

C. Changes in countries undergoing the process of transition to a market economy

33. These countries have witnessed massive legislative activity to adjust their respective systems to the new imperatives of market orientation. This has been particularly the case in the area of intellectual property and foreign direct investment. The trend towards stronger intellectual property protection in most countries of Central and Eastern Europe reflects the necessity of adapting protection régimes both to the standards prevailing in the developed market-economy countries and to the transition countries' own internal economic evolution. For example, the new laws abolish the former system of inventors' certificates and totally replace them with patents.

34. New laws on the protection of intellectual property rights follow recent international trends. For instance, pharmaceuticals, chemicals and biotechnology are covered by the laws on patents,[26] and computer programmes are protected under the copyright laws (e.g. the

Russian Federation's Copyright Laws of 1992). In most of the new States, laws and regulations have been enacted for the registration of intellectual property rights derived from the former States. For example, in Azerbaijan and in Uzbekistan, patent applications had to be re-registered by 31 December 1993.

35. The countries of Central and Eastern Europe have also liberalized their régimes governing foreign trade, investment and technology transfer. The previous system had been characterized, inter alia, by an orientation towards imports from other Central and Eastern European countries, centralized administrative screening of all export and import contracts, the exclusion of equity forms of transfer, and a preference for cooperation-based transfer. The centralized system of project screening was gradually relaxed, and the approval system was substantially liberalized, for example for intra-bloc transactions by Hungary in 1986 and for all transactions by Poland in 1989. Equity forms of transfer have been promoted more vigorously and currently appear to be given the main emphasis in technology import policies. Continuous liberalization of joint venture laws and policies has taken place, inter alia, in respect of such elements as majority foreign holdings, permitted economic sectors, transfer of profits abroad, and favourable taxation and foreign exchange régimes.

36. The speed of change has grown ever faster since 1990. For example, Romania adopted a new Foreign Investment Law in 1991 and amended it in 1993 in order to provide guarantees and incentives to foreign investors in almost all sectors of the economy.

Chapter III

BILATERAL AND MULTILATERAL AGREEMENTS

A. Bilateral agreements

Cooperation agreements

37. A number of bilateral agreements involving transfer of technology and foreign investment have been concluded in recent years. The network of bilateral agreements involves several types of cooperation and addresses different aspects of transfer of technology. Several countries have entered into cooperation agreements covering scientific and technological cooperation. For instance, Germany has signed agreements covering cooperation in scientific research and technological development with developing countries such as China, India, Indonesia and Saudi Arabia. These agreements are intended to provide broad opportunities for cooperation in scientific and technological fields of mutual interest by such means as exchange of personnel and of information, joint projects and research. These agreements provide that parties are to take all appropriate steps to strengthen cooperation in the area of industrial and technological cooperation projects. Cooperation may occur with respect to industrial facilities, intellectual property rights, technical information and technical services. Developing countries' institutions are also concluding such agreements. For instance, the National Council of Science and Technology of Bolivia has entered into an agreement (concluded pursuant to the Basic Technical and Scientific Cooperation Agreement concluded between the Governments of Peru and Bolivia) with a counterpart institution in Peru covering the exchange of researchers, joint research projects and exchange of information between the two institutions in specific identified fields.[27]

Investment and IPR agreements

38. Bilateral investment promotion and protection agreements and tax treaties have long been used to govern investors' relations with host countries. In recent years, the number of these agreements and treaties has increased substantially in the context of the promotion of foreign investment by host countries and the active policy followed by some countries to conclude such agreements. By 1992, over 500 bilateral investment agreements had been concluded for the promotion and protection of foreign direct investment.[28] These agreements continue to cover provisions on fair and equitable treatment, national treatment, most-favoured-national treatment, security of investment, expropriation, nationalization, repatriation and remittances,

subrogation and settlement of disputes. These agreements are relevant to transfer of technology in that the definition of investments or assets would normally include intellectual property rights in a large sense. In this regard, since 1990 the United States has concluded a number of reciprocal encouragement and protection of investment agreements which seek to strengthen the protection of intellectual property rights and set up, inter alia, mechanisms for dispute settlement.

39. The United States has also concluded a number of bilateral agreements with its trading partners specifically on intellectual property protection (Sri Lanka, Indonesia and Singapore). Recently, the United States and Hungary concluded an intellectual property agreement which commits Hungary to introduce product patent protection for pharmaceuticals, as well as protection for software and sound recordings.

40. Another significant development is the conclusion of agreements between the European Union and EFTA on the one hand and countries of Central and Eastern Europe on the other. These agreements deal with promotion of trade in goods and services. For example, the agreement which was concluded between EFTA and Hungary on 21 March 1993 and which entered into force on 1 October 1993 contains provisions on intellectual property rights. The contracting parties have "to grant and ensure adequate, effective and non-discriminating protection of intellectual property rights". To this end, the parties are to adopt and take measures for enforcement of such rights against infringement thereof and in particular against counterfeit and piracy. It is provided that the protection of intellectual property should attain a similar level to that prevailing in EFTA States.

B. Regional and multilateral initiatives

Andean Group

41. At the regional level, a significant recent development has been the revision of the Andean Group Countries' Common Régime on foreign investment and transfer of technology, established through the decisions of the Commission of the Cartagena Agreement. In pursuit of greater competitiveness for their economies, the Andean Group has adopted new policies towards foreign investment and transfer of technology, thus leading to the replacement of Decision 24 in 1987 by Decision 220 and then by Decision 291 in 1991. The latter removed obstacles to foreign investment in accordance with the new policies aimed at stimulating and promoting the flows of foreign capital and technology to the Andean economies. In the area of investment, the new decision adopts a more liberal approach to the treatment of foreign investment. Foreign investors have the same rights and obligations as national investors. Member countries may now consider foreign contributions, such as trademarks, industrial models and technical know-how, whether or not patented, as contributions to foreign investment.

42. The Andean Group's 1991 common code on the treatment of foreign capital and trademarks, patents, licences and royalties (Decision 291) provided that contracts on importation of technology through licensing of patents and trademarks, technical assistance, technical services, and basic and detail engineering are to be registered and evaluated by the competent national authority of the respective member country. The national authority should evaluate the contribution of the imported technology, the price of the goods which incorporate the technology or other factors by which the effects of the imported technology can be quantified. The following practices in transfer of technology transactions should be avoided: clauses that tie the supply of technology to acquisition from a particular source of capital goods, intermediate products, raw materials, other technologies or personnel indicated by the supplier of the technology; price-fixing clauses reserving for the supplier the right to set the sale or resale prices of the products produced; restrictions on the volume and structure of production; prohibiting the use of competitive technologies; clauses that establish a total or partial purchase option in favour of the supplier of the technology; and obligation of payment of royalties for the non-used or expired patents. Export limitation clauses are not permitted in the contracts. However, under exceptional circumstances, the national competent authority may authorize such limitations. It should be noted that there is no evidence of the extent of the actual application of the above rules.

43. Important changes in the area of intellectual property were introduced by Decisions 351 and 344 adopted in the last quarter of 1993. The main feature of the new régime is that all fields of technology will be patentable, including biotechnology, with the exception of essentially biological processes for the production of animal race and species and inventions relating to human organs or their genetic identity. Patents will be granted to pharmaceutical process and products. However, the products will continue to be excluded from patent protection if they are included in the list of essential pharmaceuticals published by the World Health Organization. In addition, the transitional provisions of Decision 313 of February 1992, by which member countries were permitted to restrict the granting of patents for pharmaceutical products for a period of up to 10 years, have been omitted in Decision 344.[29/] The term of patents will be extended to 20 years. The new régime retains a more limited compulsory licence system. Licences can be granted at the request of an interested party who had failed to obtain a reasonable agreement with the patent holder. Under this new régime, a patent is considered exploited, if patented products are imported into any member country. The patentee may not oppose the importation of a patented product into a member country if that product has been placed on the market in any member country by the owner of the patent, licensee or a third party with the consent of the patentee. Another important feature of the new régime is the inclusion of trade secrets protection. Software programmes are protected under the copyright Common Régime (Decision 351).

North American Free Trade Agreement (NAFTA)

44. The chief regional legislative development in the area of protection of intellectual property rights has been the conclusion of the North American Free Trade Agreement (NAFTA) involving Canada, Mexico and the United States and creating a major free-trade zone. It is the first international agreement which provides an increased level of protection to "all intellectual property rights". In this respect, it is the first international agreement to provide protection for trade secrets. National treatment is an important principle of the Agreement; it stipulates that each party shall accord to nationals of another party treatment no less favourable than that it accords to its own nationals with regard to the protection and enforcement of all intellectual property rights. In the area of patents, the agreement provides for protection of new and useful product or process inventions in all fields of technology. The agreement leaves to domestic laws the adoption of appropriate measures to prevent or control licensing practices that may in particular cases constitute an abuse of intellectual property rights having an adverse effect on competition in the relevant market.

Trade Related Aspects of Intellectual Property Rights (TRIPs)

45. Trade implications of intellectual property régimes led to some unilateral actions by some countries and prompted the consideration of the issues at the multilateral level. In this context, the Ministerial Declaration on the Uruguay Round set the objectives of the negotiations on trade-related aspects of intellectual property rights as follows: "In order to reduce the distortion and impediments to international trade, and taking into account the need to promote effective and adequate protection of intellectual property rights, and to ensure that measures and procedures to enforce intellectual property rights do not themselves become barriers to legitimate trade, the negotiations shall aim to clarify GATT's provisions and elaborate, as appropriate, new rules and disciplines".[30] It was against this background that, for the first time, protection of intellectual property rights was discussed within multilateral trade negotiations aiming at linking intellectual property rights to multilateral trade rights and obligations as a component of the international trading system.

46. The Final Act of the Uruguay Round of 15 December 1993[31] contains a comprehensive text of the agreement on trade-related aspects of intellectual property rights addressing the applicability of basic GATT principles and those of relevant intellectual property rights, the provision of effective enforcement measures for those rights, multilateral dispute settlement, and transitional arrangements. The Agreement will establish minimum universal standards on patents, copyrights, trademarks, industrial designs, geographical indications, integrated circuits and undisclosed information. It will supplement the Paris, Berne and Washington agreements in their respective fields and harmonize to a great extent the substantive and procedural rules on intellectual property rights. In setting out general provisions and basic

principles, the Agreement introduces, in addition to the well established principle of national treatment, a most-favoured-national clause, a novelty in international intellectual property régimes, under which any advantage a party gives to the nationals of another country must extend immediately and unconditionally to the nationals of all other parties, even if such treatment is more favourable than that which it gives to its own nationals.

47. As regards patents, protection will be available for all inventions, whether products or processes, in all fields of technology provided they are new, involve an inventive step and are capable of industrial application, without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced. The Agreement excludes the following from patentability: diagnostic, therapeutic and surgical methods for treatment of humans, animals and plants, including biological processes for their production. Patentable subject matter includes: micro-organisms and non-biological and micro-biological processes for the production of animals and plants. Plant varieties will be protected through patents or sui generis protection. Protection will also be extended to food, chemical and pharmaceutical products and processes for their manufacture. Detailed conditions are laid down for compulsory licensing. A 20-year term of patent protection and reversal of the burden of proof in the case of infringement of process patent and product-by-product protection are included in the Agreement. The Agreement introduces for the first time in a multilateral treaty the protection of trade secrets having commercial value.

48. The Agreement, like NAFTA, also deals with control of anti-competitive practices in licensing agreements which constitute an abuse of intellectual property rights. An illustrative list of practices includes grant-back conditions, preventing challenges to validity and coercive package licensing. Countries are allowed, according to Article 40.2, to "specify in their national legislation licensing practices or conditions that may in particular cases constitute an abuse of intellectual property rights having an adverse effect on competition in the relevant market". The Agreement commits countries to consultations concerning measures that adversely affect the transfer of technology, including abuse of intellectual property rights.

49. A transitional period of one year is available for all parties following the entry into force of the Agreement. Any developing country is entitled to delay for a period of four years the date of application of the Agreement other than provisions on national treatment and most-favoured-nation treatment. To the extent that a developing country is obliged by the Agreement to extend product patent protection to areas of technology not so protectable in its territory on the general date of application of the Agreement for that country, it may delay the application of the provisions on product patents to such areas of technology for an additional period of five years.[32] Any other country which is in the process of transformation from a centrally planned into a market, free-enterprise economy and which is undertaking structural reforms of its intellectual property system and facing special problems in the preparation and implementation of intellectual property laws, may also benefit from a period of delay of four years.

50. Least developed countries will not be required to apply, in general, the provisions of the Agreement for a period of 10 years from the date of application. Under the agreement,

developed countries are called upon to provide incentives to enterprises and institutions in their territories for the purpose of promoting and encouraging technology transfer to least-developed countries in order to enable them to create a sound and viable technological base.

World Bank Guidelines

51. At the multilateral level, another significant development was the adoption in 1992 by the World Bank of a set of Guidelines on the Treatment of Foreign Direct Investment. Drawing on the general trends and provisions of bilateral treaties, national investment codes and multilateral instruments, the Guidelines contain principles related to: (i) admission; (ii) fair and equitable treatment and national and non-discriminating treatment; (iii) expropriation; and (iv) settlement of disputes.[33] The principles and standards contained in the Guidelines will no doubt have a major influence on the development of international law in the area of treatment of foreign direct investment.

Notes

1/ Report of the Ad Hoc Working Group on Interrelationship between Investment and Technology Transfer at its first session (TD/B/39 (2)/18 - TD/B/WG.5/4), annex I, para. 7.

2/ "Compilation of legal materials dealing with transfer and development of technology" (TD/B/C.6/81), 4 August 1982.

3/ The establishment of this data-base depends on the availability of resources.

4/ The report draws particularly on the following documents:

"Periodic report 1990. Policies, laws and regulations on transfer, application and development of technology" (UNCTAD/ITP/TEC/16), 1992;

Joint ventures as a channel for the transfer of technology, United Nations, New York, 1990;

"The implementation of laws and regulations on transfer of technology - The experience of the Republic of Korea" (UNCTAD/ITP/TEC/6), 1990;

"Legislative environment to corporate policies in the United States", Report prepared by Professor Robert Pitofsky (UNCTAD/ITP/67), 1991;

"The implementation of laws and regulations on transfer of technology - The experience of Nigeria" (UNCTAD/TT/74), 1985;

"The implementation of laws and regulations on transfer of technology: the experience of Brazil" (UNCTAD/ITP/TEC/15), 1990;

"Technology-related policies and legislation in a changing economic and technological environment" (TD/B/C.6/146), 1988;

"Research and development institutes in developing countries and their contribution to technological innovation" (UNCTAD/ITP/TEC/11), 1990;

Professor J.H. Reichman, "Implications of the draft TRIPs Agreement for developing countries as competitors in an integrated world market" (UNCTAD/OSG/DP/73), 1993;

"The relevance of recent developments in the area of technology to the negotiation on the draft international code of conduct on the transfer of technology" (TD/CODE TOT/55), 1990;

Formulation and Implementation of Foreign Investment Policies. Selected Key Issues. United Nations, New York, 1992.

"R and D collaboration agreements among enterprises: A legal and contractual analysis", (UNCTAD/ITD/TEC/2), 1992;

World Investment Report 1993: Transnational Corporations and Integrated International Production, United Nations, New York, 1993;

"Host country policies and measures to promote foreign direct investment: a synthesis of eight case studies" (TD/B/WG.1/10), 1993;

Country case-studies presented to the second session of the Working Group on the Interrelationship between Investment and Technology Transfer, 13-17 December 1993 (TD/B/WG.5/2 - 17).

5/ Twenty-eight countries provided information to the secretariat on their laws and regulations in the area of transfer and development of technology.

6/ See OECD, Technology in a Changing World, OECD, Paris (1991), pp. 23 and 48.

7/ See for example, Mytelka, Lynn K. (ed.) Strategic Partnership: States, Firms and International Competition, Pinter Publishers, London (1991), p. 7.

8/ UNCTAD, "R and D collaboration agreements among enterprises : A legal and contractual analysis", chapter VI.

9/ San, Gee, "Technology, investment and trade under economic globalization : the case of Taiwan" in OECD, Trade, Investment and Technologies in the 1990s, OECD, Paris, 1991. p. 67 and "Taiwanese PC maker", Financial Times of 12 January 1994.

10/ See "Implementation of laws and regulations - The experience of the Republic of Korea" pp. 3 and 4; Country case studies: the Republic of Korea (TD/B/WG.5/Misc.6) and the Philippines (TD/B/WG.5/Misc.17).

11/ See, for example, Jacquemin, Alexis, "Strategic competition in a global environment" in OECD, op.cit, pp. 13-28.

12/ Antimonopoly Act Guidelines concerning Joint Research and Development were published by the Fair Trade Commission on 20 April 1993.

13/ National Cooperative Production Amendments of 1993.

14/ See the Antimonopoly Act of Japan (S.32).

15/ See Act against restraint of competition of Germany.

16/ The per se legality approach was advocated, in particular, by the United States' Department of Justice, which has stated that the "owner of intellectual property is fully entitled to enjoy whatever market power the property itself may confer". See "Antitrust Enforcement Guidelines for International Operations" of 10 November 1988.

17/ See also Preiskel, D, "Recent Trends in Community IP Law and No Challenge Clauses", IP World, 1 (May 1993), pp. 16-19.

18/ See OECD, Competition Policy and Intellectual Property Rights, (Paris, 1989).

19/ See "Guidelines for the regulation of unfair practices with respect to patent and know-how licensing agreements", (1989) of Japan. Particularly in the United States, this shift has been based upon a conception that certain restraints may be "essential to ensure that the new technology realizes its maximum legitimate return and benefits consumers as quickly and efficiently as possible". There is also leniency towards restrictions which are not considered to have substantial effects on competition or to restrict the recipient unfairly. Under this approach of the United States Department of Justice, practically all non-price vertical restraints should be subject to the rule of reason. In particular, the famous "Nine No-No's", previously considered as per se violations, would also be considered under the rule of reason. The 1992 Horizontal Mergers Guidelines of the Department of Justice contain a chapter expanding previous Guidelines relating to the efficiency argument. The European Union block exemption also shows more flexibility than some of the previous decisions of the Commission and the Court of Justice.

20/ See UNCTAD "The implementation of transfer of technology regulations: A preliminary analysis of the experience of Latin America, India and the Philippines" (UNCTAD/TT/32).

21/ See country case study of the Philippines (TD/B/WG.5/17).

22/ See Sapalo, I, "Transfer of technology regulation: the experience of the Philippines", paper presented in the UNCTAD Workshop on "Technology Transfer and Management", Manila (Philippines), 9-15 December 1990.

23/ See "Periodic Report 1990", II.B and II.C.

24/ See Summary of Industrial Property Legislation in Asia and the Pacific, WIPO, Geneva, 1992.

25/ See Sapalo, I, op.cit.

26/ See also Barth, R, "Patent protection of biotechnology, pharmaceutical and chemical inventions in Eastern Europe", World Patent, 58, December 1993/January 1994.

27/ Agreement between CONCYTEC and CONACYT (1993).

28/ See also the list of bilateral treaties for the reciprocal promotion/encouragement and protection of investment concluded with major capital-exporting countries in International and Comparative Law Quarterly, vol. 36, p. 64, and the list of bilateral treaties for the

promotion and protection of foreign investment signed or entering into force in 1991 and 1992, World Investment Report 1993, annex table 5, p. 256.

29/ According to Article 143, the member countries may in their respective legislation or through commitments made in international instruments strengthen or extend intellectual property rights established by the Common Régime.

30/ See Trade and Development Report 1991, p. 141.

31/ Final Act Embodying the result of the Uruguay Round of Multilateral Trade Negotiations (MTN/FA) (15 December 1993).

32/ See Article 65(4).

33/ World Bank, Legal Framework for the Treatment of Foreign Investment, volume II: Guidelines, 1992.